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10/519,380

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Refael Aharon

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EXAMINER

FELTON, MICHAEL J

ART UNIT

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,380	<b>Applicant(s)</b> AHARON, REFAEL	
	<b>Examiner</b> MICHAEL J. FELTON	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 19-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☒ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/19/2008</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/19/2008 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-17 and 19-36 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Objections***

3. Claim 5 is objected to because of the following informalities: Claim 5 contains an improper Markush language. Markush groups should be stated in "consisting of" language:

Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See *Ex parte Markush*, 1925 C.D. 126 (Comm'r Pat. 1925). (MPEP 2173.05(h), emphasis added).

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. Claims 1-17 and 19-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not disclose naturally-occurring vegetative raw matter as a raw material for the claimed process.

5. Claim 1-17 and 19-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 now states that "said cellulose fibers are not damaged following the use of said high-pressure fluid jets" (emphasis added). The specification indicates that such cellulose fibers are "virtually undamaged" relative to mechanical process. The statement that has been added to claim 1 is not consistent with "virtually undamaged" and is considered new matter because there is no description in the specification to indicate that there is no damage to the cellulose fibers or how one of ordinary skill could achieve no damage to the fibers using the process described.

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6. Claims 1-17 and 19-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 has been amended to recite "naturally-occurring vegetative raw matter". It is unclear what the meaning of "raw" or "naturally-occurring" is intended. The terms are not defined in the specification and its meaning is unclear. If the applicant intended to indicate that the matter was not processed and in a "raw" state, then this meaning is contradicted by dependent claims such as claim 19, which discloses preliminary preparation of said vegetative matter. In the interest of compact prosecution, the examiner will examine the claims assuming "raw" is intended to indicate that the vegetative material is the "raw material" or feedstock for the process, and that there is no meaning attached to the extent of processing of the feedstock.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 35 and 36 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Law et al. (CA 2,113,737).

10. Law et al. teaches making a pulp from waste cellulose material, and that the pulp contains single cellulose fibers. Although Law et al. also teaches a similar process to

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the instant application, the steps and parameters for the process for producing a pulp from vegetative material using fluid jets do not add patentable details to this invention, as no structural characteristics are association with the step in the specification. As such, these claims are "product by process" claims.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985), (MPEP 2113).

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983) ...

"[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

The pulp and any product made from the pulp disclosed by Law et al. would be have no structural differences from that of pulp or product being claimed. Law et al. disclose

"producing pulp fibers for making new paper, paperboard or carton, etc." (background of the invention, lines 11-12).

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 1, 2, 4-10, 12, 17, 19, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737).

12. Regarding claim 1, 8-10, and 28, Law et al. disclose using water jets with pressures between 1 and 5000 psi (claim 6) to break up vegetative matter (cellulosic materials) into individual cellulose fibers by placing the material on screens with successively smaller openings ranging from 2 mesh to 200 mesh (claim 4). Although Law et al. do not expressly disclose, the process would be capable of producing fibers of cellulose of predetermined size, not damage the single cellulose fibers, and produce particles with increased surface area compared with the starting material. It would have been obvious to one of ordinary skill in the art at the time of invention that the invention of Law et al. would be capable of the above because it features the same process steps as the instant invention. In addition, although Law et al. may not expressly disclose treating vegetative material, it would have been obvious to one of ordinary skill in the art at the time of invention that paper, and cellulose polymers that make up paper, are made by plants and are therefore vegetative materials.

13. Regarding claims 2 and 7, Law et al. disclose processing waste paper, which has been previously been preliminarily prepared through a first papermaking process that includes making a pulp (soaking in water).

14. Regarding claims 4 and 5, Law et al. disclose processing waste paper, which could be agricultural waste, such as agricultural product packaging or cartons. In addition, it is well known that the vegetative matter in paper is produced primarily from trees, which are plants. In addition, Law et al. disclose that it is well known to use water jets in industry as well as using fluid to make pulp from cellulosic materials such as wood, waste papers and non-wood plants (Background of the Invention, lines 23-27). This teaching of Law et al. would lead one of ordinary skill in the art to understand that the process of Law et al. would be applicable to other raw materials beyond the waste paper claimed by Law et al. to materials such as wood and non-wood plants. Law et al. provide motivation to use liquid jets to replace standard pulping and the pulping of prior arts described by indicating that using water jets is an more economical method for transforming materials into individual fibers (Background of the Invention, page 2, line 5-13).

15. Regarding claims 6, Law et al. disclose that debarking logs is known. It would have been obvious to one of ordinary skill in the art that vegetative matter routinely used to make paper, such as trees and logs, is debarked prior to pulping.

16. Regarding claims 12 and 29, Law et al. disclose using screens ranging from between 2 to 200 mesh that would have successively smaller openings in between. It would have been obvious to one of ordinary skill in the art at the time of the invention to



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optimize the screen sizes to the material being processed and the final desired fiber size. In addition, more than three or four screens can be used.

17. Regarding claims 17 and 19, Law et al. disclose using waste material that has already been preliminarily processed, as well as delignified and possibly bleached systems. These processes are notoriously well known in the production of paper products. Therefore, the process of Law et al. obviously includes these process steps.

18. Claims 3, 11, 13-16, and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) as applied to claim 1 above in further view of Fisher (US 5,316,150) and Lalonde et al. (US 3,334,578).

19. Regarding claims 3, 11, and 13-16, Law et al. does not disclose further separating and aligning fibers by using one or more grates, or pressing and drying the fibers into bales. However, Fisher discloses a method for separating long and short fibers using grates which are usable for different purposes (col. 3, line 46—col. 4, line 20). Although the materials in question between Law et al. and Fisher, it would have been obvious to one of ordinary skill in the art at the time of invention to separate fibers by size using the invention of Fisher in the process of Law et al. The motivation to do so would be to separate short, hardwood fibers from softwood fibers used in the raw material used by Law et al. As well known in the art, hardwood fibers are useful for different purposes than softwood fibers, and therefore can be diverted to different product streams.

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20. Fisher discloses that the fibers are bailed using a bailing machine (col. 5, 20-22) but does not disclose the specific operating conditions of the bailing process. Bailing fibers such as that disclosed by Fisher can be accomplished by pressing the fibers in a bailing press, such as that disclosed by Lalonde et al. Although Lalonde et al. does not disclose the pressure created by the press, it would have been obvious to one of ordinary skill in the art that the machine of Lalonde et al. would produce pressures much higher than atmospheric pressure during operation, including pressures between 20 and 400 ATM. In addition, the bale produced by Lalonde et al. is at room temperature (approximately 70°C).

21. Regarding claims 30-34, the bars of Fisher are spaced at 1 or 2 bars per inch, however, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the number of bars per inch (including between 1 to 20 bars, between 25 to 100 bars per inch, and gratings with spaces 20-300 micrometers) to correspond to the length of fibers to be separated by the process described by Fisher.

22. Claims 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) as applied to claim 17 above in further view of Blanchette et al. (US 5,055,159). Law et al. do not disclose the use of biological delignification, and in particular delignification using microorganisms in the production of paper (of which waste paper is used as the raw material for Law et al.). However, Blanchette et al. disclose a biological delignification process, in which vegetative matter was placed in reactors containing water (col. 8, 50-61) and an inoculum of a particular fungus. The

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vegetative matter soaked in nutrient medium, inoculated, and was then held at a particular temperature, slightly above room temperature (27° C) and incubated at high humidity (Col. 11, 1-49). The mixture was stirred using humidified air. Blanchette et al. also disclose that while their invention is based on laboratory scale operation, it could be used in other types of bioreactors (col. 12, 50-55). It would have been obvious to one of ordinary skill in the art to combine known pulping methods used in the production of paper with the delignification by microorganism disclosed by Blanchette et al. By using microorganisms to delignify the vegetative matter, energy consumption is reduced and lower volumes of paper processing chemicals are needed.

23. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Law et al. (CA 2,113,737) as applied to claim 19 above in further view of Christiansen et al. (US 5,013,404). Law et al. do not disclose using stabilized hydrogen peroxide as a delignification or bleaching agent. However, Christiansen et al. disclose a stabilized hydrogen peroxide for use as a bleaching agent (abstract). It would have been obvious to one of ordinary skill in the art at the time of invention to use a stabilized hydrogen peroxide to bleach paper pulp (used in the raw material being used by Law et al.), because hydrogen peroxide is a widely known bleaching agent for paper pulps.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL J. FELTON whose telephone number is

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(571)272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJF

/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1791